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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|----------------------------|------------------------|
| 10/719,914 | 11/21/2003 | Sartaj Kumar Sahni | UF-318XC1 | 3334 |
| 23557 7590 01/17/2008 SALIWANCHIK LLOYD & SALIWANCHIK A PROFESSIONAL ASSOCIATION PO BOX 142950 GAINESVILLE, FL 32614-2950 | | | | |
| | | | EXAMINER CHAN, SAI MING | |
| | | | ART UNIT 2616 | PAPER NUMBER |
| | | | MAIL DATE 01/17/2008 | DELIVERY MODE PAPER |

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/719,914

Applicant(s)

SAHNI ET AL.

Examiner

Sai-Ming Chan

Art Unit

2616

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) ✓
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08) ✓
- Paper No(s)/Mail Date _____

- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

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DETAILED ACTION

Priority

Applicant's claim for domestic priority under 35 U.S.C. 119(e) is acknowledged.

Information Disclosure Statement

The information disclosure statements (IDS) submitted on 4/19/2004 and 5/13/2004 have been considered by the Examiner and made of record in the application file.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-2, 4-8 and 10-14 are rejected under 35 U.S.C. 102(b) as being anticipated by **Diener et al. (U.S. Patent Publication # 20040137915)**.

Consider **claims 1, 8 and 13** Turner et al. clearly disclose and show a method for improving routing operations in dynamic routing tables comprising:

(a) establishing s to be used in a prefix partitioning scheme (column 8, lines 10-18 ($s = \log_{\text{sub}.2} n$));

(b) partitioning at least one prefix into up to $\min(n, 2^{\text{sup}.s+1})$ partitions (column 8, lines 10-18 ($\log_{\text{sub}.2} n + 1$));

(c) assessing prefix length with regard to s (column 8, lines 10-18 ($s = \log_{\text{sub}.2} n$));

(d) storing the prefix whose length is larger than or equal to s in a partition that corresponds to the value of the prefix's first s bit (column 9, lines 7-29 (right half));

(e) storing prefixes whose length is smaller than s in a first designated partition (column 9, lines 7-29 (left half)); and

(f) representing the prefixes in each partition using a router table data structure (column 5, lines 34-40 (trie)).

Consider **claim 2**, and **as applied to claim 1 above**,

claim 10, and **as applied to claim 8 above**,

Turner et al. clearly disclose and show a method, wherein the representative router table structure is a dynamic router-table data structure (column 12, lines 55-62 (dynamic binary search)).

Consider **claim 4**, and **as applied to claim 1 above**,

claim 11, and **as applied to claim 10 above**,

Turner et al. clearly disclose and show a method, wherein the representative router table structure is a static router-table data structure (fig.7, column 5, lines 41-52).

Consider **claim 5**, and **as applied to claim 4 above**,

claim 12, and **as applied to claim 8 above**,

Turner et al. clearly disclose and show a method, wherein the static router-table data structure is selected from a group consisting of a linear array (column 7, lines 25-34 (linear searching)); trie-based data structures (column 5, lines 34-39 (trie)); and hash trees (column 4, lines (57-65 (hashing))) organized by prefix length (column 4, lines 57-65 (prefix)).

Consider **claim 6**, and **as applied to claim 1 above**,

claim 14, and **as applied to claim 13 above**,

Turner et al. clearly disclose and show a method, further comprising the steps of:

(a) establishing t (column 21, lines 49-59) to be used for further partitioning the prefixes whose length is smaller than s ;

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(b) assessing the length of the prefixes stored in the designated partition with regard to t (column 21, lines 64-67, column 22, lines);

(b) partitioning at least one of the prefixes whose length is larger than or equal to t in up to $\min(n, 2^{\lceil t+1 \rceil})$ (column 21, lines 64-67, column 22, lines 1-5 ($\log_2(6+1)$)) partitions, wherein the prefix whose length is smaller than s and larger than or equal to t is placed in a partition based on the value of the prefix's first t bit (column 9, lines 7-29 (right half)); and

(c) storing the prefixes whose length is smaller than s and t into a second designated partition (column 9, lines 7-29 (left half)).

Consider **claim 7**, and **as applied to claim 1 above**, Turner et al. clearly disclose and show a method, further comprising the step of indexing nonempty partitions (column 19, lines 53-61 (partition)) using an array (column 21, lines 43-48 (array)) or a hash table (column 19, lines 53-61 (hash table)).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating

obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 3 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Turner et al. (U.S. Patent #6018524)**, in view of **Licon et al. (U.S. Patent # 6728705)**, and in view of **Nishikado et al. (U.S. Patent # 6366582)**.

Consider **claim 3**, and as applied to **claim 2** above,

claim 9, and as applied to **claim 8** above,

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Turner et al. clearly disclose and show a method, wherein the dynamic router-table data structure is selected from a group consisting of; BOB (abstract (binary search)); PBOB (abstract (prefix binary search)); LMPBOB (column 3, lines 52-56 (longest prefix match); B-tree data structure (column 4, lines 29-39 (trie data structure)); and one bit TRIE (column 4, lines 29-39 (trie)) and BOT (column 12, lines 55-62 (binary search in terms of tries).

However, Turner et al. do not specifically disclose other router table data structures.

In the same field of endeavor, Licon et al. clearly show dynamic router-table data structure is selected from a group consisting of CRBT (column 2, lines 57-67, column 3, lines 1-7 (red-black trees)); ACRBT (column 2, lines 57-67, column 3, lines 1-7 (red-black trees));

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of invention to incorporate a routing operation, as taught by Turner, and display the red-black data structure, as taught by Licon, in order to illustrate the partitioning of the router tables.

However, Turner et al., as modified by Licon, do not specifically disclose priority search.

Furthermore, Nishikado et al. clearly show dynamic router-table data structure consisted of PST (column 6, lines 35-55 (priority selection mechanism)) and HOT (column 6, lines 35-55).

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Therefore, it would have been obvious to a person of ordinary skill in the art at the time of invention to incorporate a routing operation, as taught by Turner, and display the red-black data structure, as taught by Licon, and demonstrate the priority search, as taught by Nishikado, so that the search can be conducted efficiently.

Conclusion

Any response to this Office Action should be **faxed to (571) 273-8300 or mailed to:**

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Hand-delivered responses should be brought to

Customer Service Window
Randolph Building
401 Dulany Street
Alexandria, VA 22314

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Sai-Ming Chan whose telephone number is (571) 270-1769. The Examiner can normally be reached on Monday-Thursday from 6:30am to 5:00pm.

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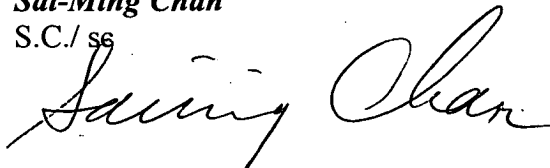
If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Seema Rao can be reached on (571) 272-3174. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free) or 571-272-4100.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist/customer service whose telephone number is (571) 272-2600.

Sai-Ming Chan

S.C./ ss



January 12, 2008

Seema S. Rao
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